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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,006

04/12/2005

Satoshi Tanaka

2005\_0626A

3102

513 7590 06/10/2009

WENDEROTH, LIND & PONACK, L.L.P.

1030 15th Street, N.W.,

Suite 400 East

Washington, DC 20005-1503

EXAMINER

GRUN, ROBERT J

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

06/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,006	<b>Applicant(s)</b> TANAKA ET AL.	
	<b>Examiner</b> ROBERT J. GRUN	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 24, 25 and 36-40 is/are pending in the application.
- 4a) Of the above claim(s) 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 24 and 36-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11, and 36-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Stang et al. (US 4,777,186).

- Regarding Claim 1: Stang et al. disclose: 1) providing a mold cavity (abstract), 2) injecting foamable material into the mold cavity (col. 1 lines 37-39), 3) pressurizing the mold (abstract), 4) foaming the material under pressure (abstract) 4) releasing the pressurization of the mold, wherein the foamable material is introduced to the mold under atmospheric pressure (col. 3 lines 36-38 and col. 4 lines 38-47). Stang et al. does not specifically disclose controlling the injection flow rate of the foamable material into the mold cavity, however any injection of material into the mold would necessarily include controlling the flow rate.
- Regarding Claim 2: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose the hermetic (air tight) closing of the mold to allow pressurization (col. 4 lines 41-44).
- Regarding Claims 3, 4, and 5: Stang et al. disclose the invention as described above in the rejection of Claims 1 and 2. Stang et al. further disclose various orders of

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introduction of the foam and the predetermined gas to the closed reaction vessel (col. 2 lines 50-55 and Examples).

- Regarding Claims 6, 7, and 8: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose controlling the pressure at a predetermined level and controlling said pressure after introduction of the foamable material (Examples 11 and 12).
- Regarding Claim 9 and 11: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose discharging a gas from inside the cavity to outside the cavity by venting of the excess pressure which inherently requires opening the cavity of the mold with a valve (col. 3 lines 19-23).
- Regarding Claim 10: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose maintaining of various pressures in the cavity between 5 psig and 50 psig ( $.35 \text{ kg/cm}^2$ - $3.52 \text{ kg/cm}^2$ ) (Examples).
- Regarding Claims 36-38: Stang et al. disclose the invention as described above in the rejection of Claim 1. As described above, Stang et al. disclose various methods of controlling the pressure such as: maintaining a pressure in the mold (Example 11-12) by depressurizing the cavity by releasing a gas from the mold (venting of the cavity (col. 3 lines 19-23). While Stang et al. does not specifically state that the amount of gas released is based on an injected amount of the foamable material, they do disclose maintaining the pressure by releasing the gas produced in the polyurethane reaction to maintain the pressure. Such release would inherently depend on the amount of foamable material.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stang et al. (US 4,777,186).

- Regarding Claim 1: Stang et al. disclose: 1) providing a mold cavity (abstract), 2) injecting foamable material into the mold cavity (col. 1 lines 37-39), 3) pressurizing the mold (abstract), 4) foaming the material under pressure (abstract) 4) releasing the pressurization of the mold, wherein the foamable material is introduced to the mold under atmospheric pressure (col. 3 lines 36-38 and col. 4 lines 38-47). Stang et al. does not specifically disclose controlling the injection flow rate of the foamable material into the mold cavity, however one having ordinary skill in the art at the time of invention would have found it obvious to control the rate of injection so as to enable the predetermined pressure to be maintained in the cavity.
- Regarding Claim 2: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose the hermetic (air tight) closing of the mold to allow pressurization (col. 4 lines 41-44).
- Regarding Claims 3, 4, and 5: Stang et al. disclose the invention as described above in the rejection of Claims 1 and 2. Stang et al. further disclose various orders of

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introduction of the foam and the predetermined gas to the closed reaction vessel (col. 2 lines 50-55 and Examples).

- Regarding Claims 6, 7, and 8: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose controlling the pressure at a predetermined level and controlling said pressure after introduction of the foamable material (Examples 11 and 12).
- Regarding Claim 9 and 11: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose discharging a gas from inside the cavity to outside the cavity by venting of the excess pressure which inherently requires opening the cavity of the mold with a valve (col. 3 lines 19-23).
- Regarding Claim 10: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. further disclose maintaining of various pressures in the cavity between 5 psig and 50 psig ( $.35 \text{ kg/cm}^2$ - $3.52 \text{ kg/cm}^2$ ) (Examples).
- Regarding Claims 36-38: Stang et al. disclose the invention as described above in the rejection of Claim 1. As described above, Stang et al. disclose various methods of controlling the pressure such as: maintaining a pressure in the mold (Example 11-12) by depressurizing the cavity by releasing a gas from the mold (venting of the cavity (col. 3 lines 19-23). While Stang et al. does not specifically state that the amount of gas released is based on an injected amount of the foamable material, they do disclose maintaining the pressure by releasing the gas produced in the polyurethane reaction to maintain the pressure. Such release would inherently depend on the amount of foamable material.

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5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaminski et al. (US Patent No. 5,283,924), in view of Stang et al. (US 4,777,186).

- Kaminski teaches the foaming of a polymeric foam around a solid core to produce a foam brush used for dental hygiene (abstract). Stang et al. teach a method and apparatus for producing a high quality polymeric foam as describe above in the rejection of claims 1-11. One of ordinary skill in the art at the time of invention would have found it obvious to use the method and apparatus in Stang et al. to form the brush in Kaminski, since both are in the same polymeric foam art. The person of ordinary skill at the time of invention would have found it obvious to use the foaming method and apparatus of Stang et al. to form foam around a core in order to provide soft foam brush to tooth cleaning devices.

6. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stang et al. (US 4,777,186) as applied to claim 1 above, and further in view of Jennings (US 3,551,947).

- Regarding Claims 39 and 40: Stang et al. disclose the invention as described above in the rejection of Claim 1. Stang et al. does not disclose the use of a flowmeter to control the flow of injection of the foamable material. However one having ordinary skill in the art at the time of invention wanting to control the flow of material into the mold would have found the use of a instrument known in the art (flowmeter such as used in Jennings) to control the flow of polyurethane into the mold in order to allow precise control of the amount of material injected and thus the pressure inside the mold.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT J. GRUN whose telephone number is (571)270-5521. The examiner can normally be reached on Mon-Thur 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT J GRUN/  
Examiner, Art Unit 1791

/Philip C Tucker/  
Supervisory Patent Examiner, Art Unit 1791